

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A document inverting-and-transporting apparatus which is to be mounted on an image reading apparatus having a reading unit which reads an image of a document at a reading position, the document inverting-and-transporting apparatus comprising:

a transport path including:

a first route along which the document is transported from a feeding start position to a transport direction changing position;

a joining position; and

the reading position, wherein the joining position and the reading position are located in the first route in a sequence along a document transport direction;

an inversion-and-transport path including a second route along which the document is transported from the transport direction changing position to the reading position via the joining position;

a document transporting unit which transports the document;

~~_____ a closed portion which constitutes a part of the inversion-and-transport path;~~

a document length detecting unit which detects a length of the document before the document is transported from the transport direction changing position to the inversion-and-transport path;

~~_____ a pair of rollers disposed at the transport direction changing position;~~

a first comparing unit which compares the detected length of the document with a predetermined length which is larger than a length of the closed portion; length; and

a controlling unit which controls the pair of rollers

to rotate in a first rotating direction and reverse the first rotating direction to a second direction to transport the document, which has been transported through the first route, to the second route when the detected length of the document is longer than the predetermined length on the basis of a comparing result of the first comparing unit, and
to rotate in the first rotating direction to discharge the document transported through the second route. ~~-, determines whether the document is to be transported to the inversion-and-transport path or not on the basis of a result of the comparison by the first comparing unit and controls the document transporting unit on the basis of the determination.~~

2. (Currently Amended) The document inverting-and-transporting apparatus according to claim 1, further comprising:

a closed portion which constitutes a part of the inversion-and-transport path, wherein the closed portion corresponds to a part of the second route, the part elongating from the transport direction changing position to the joining position without passing the reading position.

3. (Original) The document inverting-and-transporting apparatus according to claim 1, wherein a document discharging portion, which discharges the document, is disposed at the transport direction changing position.

4. (Currently Amended) The document inverting-and-transporting apparatus according to claim 2, further comprising:

a cover member which covers the transport path swingably and, when opened, allows the joining position to be exposed, wherein:

the first comparing unit compares the predetermined length ($L1 + \alpha$) with L , where L denotes a length of the document detected by the document length detecting unit, $L1$

denotes a length of the closed portion and α denotes a depth dimension enabling the document to be picked out; and

when the result of the comparison by the first comparing unit is $L \geq (L1 + \alpha)$, the controlling unit controls the document transporting unit to transport the document to the inversion-and-transport path.

5. (Original) The document inverting-and-transporting apparatus according to claim 4, wherein when the result of the comparison by the first comparing unit is $L < (L1 + \alpha)$, the controlling unit controls the document transporting unit to discharge the document to an outside of the document inverting-and-transporting apparatus without transporting the document to the inversion-and-transport path.

6. (Original) The document inverting-and-transporting apparatus according to claim 5, wherein after both surfaces of the document are read at the reading position, the controlling unit controls the transporting unit to discharge the document to the outside.

7. (Currently Amended) The document inverting-and-transporting apparatus according to claim 2, further comprising:

a cover member which covers the transport path swingably and, when opened, allows the joining position to be exposed; and

a reading opening which is defined at the reading position to enable the reading unit to read an image of the document, wherein:

the first comparing unit compares the predetermined length $(L2 + \alpha)$ with L , where L denotes a length of the document detected by the document length detecting unit, $L2$ denotes a length from the transport direction changing position to the reading opening via the joining position and α denotes a depth dimension enabling the document to be picked out; and

when the result of the comparison by the first comparing unit is $L \geq (L2 + \alpha)$, the controlling unit controls the document transporting unit to transport the document to the inversion-and-transport path.

8. (Original) The document inverting-and-transporting apparatus according to claim 7, wherein when the result of the comparison by the first comparing unit is $L < (L2 + \alpha)$, the controlling unit controls the document transporting unit to discharge the document to an outside of the document inverting-and-transporting apparatus without transporting the document to the inversion-and-transport path.

9. (Original) The document inverting-and-transporting apparatus according to claim 8, wherein after both surfaces of the document are read at the reading position, the controlling unit controls the transporting unit to discharge the document to the outside.

10. (Currently Amended) The document inverting-and-transporting apparatus according to claim 1, further comprising:

a closed portion which constitutes a part of the inversion-and-transport path;
and

a reading opening which is defined at the reading position to enable the reading unit to read an image of the document, wherein:

the closed portion corresponds to a part of the second route, the part elongating from the transport direction changing position to the reading opening via the joining position.

11. (Currently Amended) The document inverting-and-transporting apparatus according to claim 10, wherein

the first comparing unit compares the predetermined length $(L2 + \alpha)$ with L , where L denotes a length of the document detected by the document length detecting unit, $L2$ denotes a length from the transport direction changing position to the reading position via the joining position and α denotes a depth dimension enabling the document to be picked out; and

when the result of the comparison by the first comparing unit is $L \geq (L2 + \alpha)$, the controlling unit controls the document transporting unit to transport the document to the inversion-and-transport path.

12. (Original) The document inverting-and-transporting apparatus according to claim 11, wherein when the result of the comparison by the first comparing unit is $L < (L2 + \alpha)$, the controlling unit controls the document transporting unit to discharge the document to an outside of the document inverting-and-transporting apparatus without transporting the document to the inversion-and-transport path.

13. (Original) The document inverting-and-transporting apparatus according to claim 12, wherein after both surfaces of the document are read at the reading position, the controlling unit controls the transporting unit to discharge the document to the outside via the discharging portion.

14. (Currently Amended) ~~The~~ A document inverting-and-transporting apparatus which is to be mounted on an image reading apparatus having a reading unit which reads an image of a document at a reading position, the document inverting-and-transporting apparatus comprising: according to claim 1, further comprising:

a transport path including:

a first route along which the document is transported from a feeding start position to a transport direction changing position;

a joining position; and

the reading position, wherein the joining position and the reading position are located in the first route in a sequence along a document transport direction;

an inversion-and-transport path including a second route along which the document is transported from the transport direction changing position to the reading position via the joining position;

_____ a document transporting unit which transports the document;
_____ a closed portion which constitutes a part of the inversion-and-transport path;
_____ a document length detecting unit which detects a length of the document
before the document is transported from the transport direction changing position to the
inversion-and-transport path;
_____ a first comparing unit which compares the detected length of the document
with a predetermined length which is larger than a length of the closed portion;
_____ a controlling unit which determines whether the document is to be transported
to the inversion-and-transport path or not on the basis of a result of the comparison by the
first comparing unit and controls the document transporting unit on the basis of the
determination;

a document detecting unit which is disposed downstream of the joining position in the document transport direction, and detects whether the document exists or not;

a second comparing unit which compares L3 with L4 where L3 denotes a length from the transport direction changing position to the document detecting unit via the joining position and L4 denotes a transport distance by which the document transporting unit transports the document from the transport direction changing position into the inversion-and-transport path; and

a determining unit which, on the basis of a result of the comparison by the second comparing unit, determines whether a jam occurs in the inversion-and-transport path or not.

15. (Previously Presented) The document inverting-and-transporting apparatus according to claim 14, wherein, if the document detecting unit detects that the document does not exist although the result of the comparison by the second comparing unit is $L4 > L3$, the determining unit determines that the jam occurs in the inversion-and-transport path.

16. (Original) The document inverting-and-transporting apparatus according to claim 15, wherein after both surfaces of the document are read at the reading position, the controlling unit controls the transporting unit to discharge the document to the outside.

17. (Original) The document inverting-and-transporting apparatus according to claim 14, wherein the document detecting unit is disposed between the joining position and the reading position.

18. (Original) The document inverting-and-transporting apparatus according to claim 17, wherein the document length detecting unit and the document detecting unit are configured by a common sensor.

19. (Original) The document inverting-and-transporting apparatus according to claim 1, further comprising:

a document detecting unit which is disposed downstream of the joining position in the document transport direction, and detects whether the document exists or not;

a second comparing unit which compares $(L3 + \beta)$ with $L4$ where $L3$ denotes a length from the transport direction changing position to the document detecting unit via the joining position; $L4$ denotes a transport distance by which the document transporting unit transports the document from the transport direction changing position into the inversion-and-transport path; and β denotes a predetermined length for determination of jam; and

a determining unit which, on the basis of a result of the comparison by the second comparing unit, determines whether the jam occurs in the inversion-and-transport path or not.

20. (Original) The document inverting-and-transporting apparatus according to claim 19, wherein if the document detecting unit detects that the document does not exist although the result of the comparison by the second comparing unit is $L4 > (L3 + \beta)$, the determining unit determines that the jam occurs in the inversion-and-transport path.

21. (Original) The document inverting-and-transporting apparatus according to claim 20, wherein after both surfaces of the document are read at the reading position, the controlling unit controls the transporting unit to discharge the document to an outside of the document inverting-and-transporting apparatus.

22. (Original) The document inverting-and-transporting apparatus according to claim 19, wherein the document detecting unit is disposed between the joining position and the reading position.

23. (Original) The document inverting-and-transporting apparatus according to claim 22, wherein the document length detecting unit and the document detecting unit are configured by a common sensor.

24. (Original) The document inverting-and-transporting apparatus according to claim 1, further comprising:

a document detecting unit which is disposed downstream of the joining position in the document transport direction, and detects a front end of the document and a rear end of the document;

a second comparing unit which compares $(L3 + \beta)$ with $L4 + (\gamma - \delta)$ where $L3$ denotes a length from the transport direction changing position to the document detecting unit via the joining position; $L4$ denotes a transport distance by which the document transporting unit transports the document from the transport direction changing position into the inversion-and-transport path; β denotes a predetermined length for determination of jam; γ denotes a length from a rear detection position where the document detecting unit detects the rear end of the document to the transport direction changing position; and δ denotes a transport distance from a timing when the document detecting unit detects the rear end of the document to a timing when the transporting unit once stops transporting the document; and

a determining unit which, on the basis of a result of the comparison by the second comparing unit, determines whether the jam occurs in the inversion-and-transport path or not.

25. (Original) The document inverting-and-transporting apparatus according to claim 24, wherein if the document detecting unit detects that a document does not exist although the result of the comparison by the second comparing unit is $L4 + (\gamma - \delta) > (L3 + \beta)$, the determining unit determines that the jam occurs in the inversion-and-transport path.

26. (Original) The document inverting-and-transporting apparatus according to claim 25, wherein after both surfaces of the document are read at the reading position, the controlling unit controls the transporting unit to discharge the document to an outside of the document inverting-and-transporting apparatus.

27. (Original) The document inverting-and-transporting apparatus according to claim 24, wherein the document detecting unit is disposed between the joining position and the reading position.

28. (Original) The document inverting-and-transporting apparatus according to claim 27, wherein the document length detecting unit and the document detecting unit are configured by a common sensor.

29. (Currently Amended) A document inverting-and-transporting apparatus comprising:

a transporting unit which transports a document;

a transport path including a joining position, a reading position where the document is read by a reading unit, and a transport direction changing position where the transporting unit changes a transport direction of the document;

an inversion-and-transport path between the transport direction changing position and the joining position without including the reading position;

a document length detecting unit which detects a length of the document;

a pair of rollers disposed at the transport direction changing position;

a first comparing unit which compares the detected length of the document with a predetermined length ~~which is equal to or larger than a length between the joining position and the document direction changing position;~~ length; and

a controlling unit which controls the pair of rollers

to rotate in a first rotating direction and reverse the first rotating direction to a second direction to transport the document, which has been transported through the first route, to the second route when the detected length of the document is longer than the predetermined length on the basis of a comparing result of the first comparing unit, and

to rotate in the first rotating direction to discharge the document transported through the second route. ~~, determines whether the document is to be transported to the inversion-and-transport path or not on the basis of a result of the comparison by the first comparing unit and controls the document transporting unit on the basis of the determination.~~

30. (Currently Amended) The document inverting-and-transporting apparatus according to claim 29, wherein:

the predetermined length is $L1 + \alpha$, where $L1$ denotes the length between the joining position and the document direction changing position and α denotes a depth dimension enabling the document to be picked out;

when the result of the comparison by the first comparing unit is $L \geq (L1 + \alpha)$, where L denotes a length of the document detected by the document length detecting unit, the controlling unit controls the document transporting unit to transport the document to the inversion-and-transport path; and

when the result of the comparison by the first comparing unit is $L < (L1 + \alpha)$, the controlling unit controls the document transporting unit to discharge the document to an outside of the document inverting-and-transporting apparatus without transporting the document to the inversion-and-transport path.

31. (Currently Amended) The document inverting-and-transporting apparatus according to claim 29, further comprising:

a reading opening which is defined at the reading position to enable the reading unit to read an image of the document, wherein:

the predetermined length is $L2 + \alpha$, where $L2$ denotes a length from the transport direction changing position to the reading opening via the joining position and α denotes a depth dimension enabling the document to be picked out;

when the result of the comparison by the first comparing unit is $L \geq (L2 + \alpha)$, where L denotes a length of the document detected by the document length detecting unit, the controlling unit controls the document transporting unit to transport the document to the inversion-and-transport path; and

when the result of the comparison by the first comparing unit is $L < (L2 + \alpha)$, the controlling unit controls the document transporting unit to discharge the document through the discharging portion to an outside of the document inverting-and-transporting apparatus without transporting the document to the inversion-and-transport path.

32. (Currently Amended) ~~The~~ A document inverting-and-transporting apparatus according to claim 29, further comprising:

a transporting unit which transports a document;

a transport path including a joining position, a reading position where the document is read by a reading unit, and a transport direction changing position where the transporting unit changes a transport direction of the document;

an inversion-and-transport path between the transport direction changing position and the joining position without including the reading position;

a document length detecting unit which detects a length of the document;

a first comparing unit which compares the detected length of the document with a predetermined length which is equal to or larger than a length between the joining position and the document direction changing position;

a controlling unit which determines whether the document is to be transported to the inversion-and-transport path or not on the basis of a result of the comparison by the first comparing unit and controls the document transporting unit on the basis of the determination;

a document detecting unit which is disposed downstream of the joining position in the document transport direction, and detects whether a document exists or not;

a second comparing unit which compares L3 with L4 where L3 denotes a length from the transport direction changing position to the document detecting unit via the joining position and L4 denotes a transport distance by which the document transporting unit transports the document from the transport direction changing position into the inversion-and-transport path; and

a determining unit which, on the basis of a result of the comparison by the second comparing unit, determines whether a jam occurs in the inversion-and-transport path or not, wherein:

if the document detecting unit detects that the document does not exist although the result of the comparison by the second comparing unit is $L4 > L3$, the determining unit determines that the jam occurs in the inversion-and-transport path.

33. (Original) The document inverting-and-transporting apparatus according to claim 29, further comprising:

a document detecting unit which is disposed downstream of the joining position in the document transport direction, and detects whether a document exists or not;

a second comparing unit which compares $(L3 + \beta)$ with $L4$ where $L3$ denotes a length from the transport direction changing position to the document detecting unit via the joining position; $L4$ denotes a transport distance by which the document transporting unit transports the document from the transport direction changing position into the inversion-and-transport path; and β denotes a predetermined length for determination of jam; and

a determining unit which, on the basis of a result of the comparison by the second comparing unit, determines whether the jam occurs in the inversion-and-transport path or not, wherein:

if the document detecting unit detects that the document does not exist although the result of the comparison by the second comparing unit is $L4 > (L3 + \beta)$, the determining unit determines that the jam occurs in the inversion-and-transport path.

34. (Original) The document inverting-and-transporting apparatus according to claim 29, further comprising:

a document detecting unit which is disposed downstream of the joining position in the document transport direction, and detects a front end of the document and a rear end of the document;

a second comparing unit which compares $(L3 + \beta)$ with $L4 + (\gamma - \delta)$ where $L3$ denotes a length from the transport direction changing position to the document detecting unit via the joining position; $L4$ denotes a transport distance by which the document transporting unit transports the document from the transport direction changing position into the inversion-and-transport path; β denotes a predetermined length for determination of jam; γ denotes a length from a rear detection position where the document detecting unit detects the rear end of the document to the transport direction changing position; and δ denotes a transport

distance from a timing when the document detecting unit detects the rear end of the document to a timing when the transporting unit once stops transporting the document; and

a determining unit which, on the basis of a result of the comparison by the second comparing unit, determines whether a jam occurs in the inversion-and-transport path or not, wherein:

if the document detecting unit detects that the document does not exist although the result of the comparison by the second comparing unit is $L4 + (\gamma - \delta) > (L3 + \beta)$, the determining unit determines that the jam occurs in the inversion-and-transport path.

35. (New) The document inverting-and-transporting apparatus according to claim 1,

wherein the controlling unit controls the pair of rollers to rotate in the first direction to discharge the document transported through the first route when the detected length of the document is equal to or shorter than the predetermined length on the basis of the comparing result of the first comparing unit.

36. (New) The document inverting-and-transporting apparatus according to claim 29,

wherein the controlling unit controls the pair of rollers to rotate in the first direction to discharge the document transported through the first route when the detected length of the document is equal to or shorter than the predetermined length on the basis of the comparing result of the first comparing unit.